
Firefighters and grannies (1)

P18110_en

Examen parcial d'Algorísmia, FME (2017-11-06)

The firefighters of a distant country want to protect the grannies inside n schools. All the schools are in a row on a street, numbered in order from 1 to n . At each school j there are i_j grannies. The firefighters can form g groups, and each group can only go to a single school. If a group goes to school j , it protects all the grannies there. In addition, it also indirectly protects half the grannies in school $j - 1$, assuming that it exists and that it is not already fully protected by another group; and similarly with school $j + 1$.

What is the maximum number of grannies that can be protected?

Input

Input consists of several cases, each one with g and n , followed by the i_j 's. You can assume $1 \leq g \leq n \leq 20$, and that all the i_j 's are even natural numbers between 2 and 10^5 .

Output

For every case, print how many grannies can be protected.

Hint

The expected solution for this problem is a reasonable backtracking.

Sample input

```
1 1 100000
1 2 10 20
1 3 10 80 20
1 3 10 20 80
3 3 10 20 80
3 9 4 8 2 4 8 8 6 2 8
9 9 2 2 2 2 2 2 2 2 2
```

Sample output

```
100000
25
95
90
110
36
18
```

Problem information

Author : Salvador Roura

Translator : Salvador Roura

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